

Bermuda on the 20th, and north of the Azores on the 24th, with barometer 29.48 inches at Horta, Fayal; it advanced thence south of east to a position north of Lisbon by the 27th, with barometer 29.40 inches at Lisbon, after which it disappeared over southern Europe.

In the interest of eastward bound transatlantic steamers forecasts of weather and the direction and force of the wind from the American coast to the Banks of Newfoundland were issued twice daily from Washington. Ample and timely warnings were given of gales that visited the Atlantic, Pacific, and Gulf coasts, and the Great Lakes.

The following extract from the Portland, Oreg., Telegram, of April 30, comments on the storm that visited that section the night of the 28th and during the 29th, and the warnings that were issued in advance of its arrival:

The alertness of the Weather Bureau in anticipating a severe storm by sending out warnings and the good accomplished by these warnings was given a practical demonstration Monday, when the local office telegraphed its marine stations up and down the coast to be on the watch for a southwest gale, and in less than eight hours after the warnings were issued the storm swept over the coast in all its fury; but for the fact that fishermen and others were prepared for it, much damage and probably loss of life would have resulted.

In the central and northern districts vegetation was not sufficiently advanced to be seriously affected by the cold and frost of the month, and the occurrence of frost in the Southern States was anticipated by the forecasts and warnings.

The display of storm warnings on the Great Lakes and on Lake Pepin was resumed for the season April 1.

#### BOSTON FORECAST DISTRICT.

Severe northeast gales prevailed during the 8th and 9th, and high winds and gales from the 26th to the 30th, for which timely warnings were given. There were no gales without warnings.—*J. W. Smith, Forecast Official.*

#### NEW ORLEANS FORECAST DISTRICT.

No severe weather conditions occurred in any part of the district during the month.—*I. M. Cline, Forecast Official.*

#### CHICAGO FORECAST DISTRICT.

The severest storms occurred during the third decade of the month when a great deal of damage was done to vessels on the lakes, and to buildings and property in the upper Mississippi and lower Missouri valleys. Shipping on the Great Lakes was warned of the approach of these storms. Remarkably high temperatures, with high winds, prevailed in Nebraska, Kansas, and northwest Missouri on the 20th. Frost warnings were issued for parts of the middle-western States on the 16th, 22d, 23d, and 26th.—*F. J. Wals, Local Forecast Official.*

#### DENVER FORECAST DISTRICT.

Light frost occurred on a number of dates and was, as a rule, accurately forecast.—*F. H. Brandenburg, Forecast Official.*

#### SAN FRANCISCO FORECAST DISTRICT.

The month was one of frequent but not very heavy rainfall, and was unusually free from frost injurious to budding fruit.—*A. G. McAdie, Professor.*

#### PORTLAND, OREG., FORECAST DISTRICT.

Light to moderately heavy frost was of frequent occurrence, and was, as a rule, accurately forecast. Notable storms, for which timely warnings were issued, occurred in the first and third decades of the month.—*E. A. Beals, Forecast Official.*

#### HAVANA FORECAST DISTRICT.

No special forecasts or warnings were issued during the month.—*W. B. Stockman, Forecast Official.*

#### AREAS OF HIGH AND LOW PRESSURE.

*Movements of centers of areas of high and low pressure.*

Number.	First observed.			Last observed.			Path.		Average velocity.	
	Date.	Lat. N.	Long. W.	Date.	Lat. N.	Long. W.	Length.	Duration.	Daily.	Hourly.
<b>High areas.</b>										
I.....	*31, p.m.	50	107	3, p.m.	32	65	Miles.	Days.	Miles.	Miles.
II.....	3, a.m.	51	104	5, a.m.	36	87	2,975	3.0	992	41.3
III.....	6, a.m.	53	108	8, a.m.	48	86	1,550	2.0	775	32.3
IV.....	6, p.m.	34	118	16, a.m.	39	75	2,100	2.0	1,050	43.8
V.....	11, a.m.	37	122	13, a.m.	46	118	1,175	2.0	588	24.5
VI.....	21, a.m.	53	108	26, p.m.	46	60	3,825	9.5	403	16.8
VII.....	26, a.m.	37	100	30, a.m.	48	54	900	2.0	450	18.8
							3,400	5.5	618	25.8
							2,725	4.0	681	28.4
Sums.....							18,650	30.0	5,557	231.7
Mean of 8 paths.....							2,331		695	29.0
Mean of 30 days.....									623	26.0
<b>Low areas.</b>										
I.....	1, a.m.	45	123	7, a.m.	47	54	4,250	6.0	708	29.5
II.....	3, p.m.	51	120	6, p.m.	45	83	1,975	3.0	658	27.4
III.....	5, p.m.	32	106	11, a.m.	45	64	2,425	3.0	808	33.3
IV.....	7, a.m.	51	120	8, p.m.	53	105	3,200	5.5	582	24.2
V.....	10, p.m.	47	97	12, p.m.	48	68	800	1.5	533	22.2
VI.....	17, a.m.	60	110	20, a.m.	47	71	1,400	2.0	700	29.2
VII.....	17, a.m.	60	110	20, a.m.	47	71	2,275	3.0	758	31.6
VIII.....	18, a.m.	48	124	24, a.m.	46	60	3,600	6.0	600	25.0
IX.....	23, p.m.	39	120	27, p.m.	48	68	2,725	4.0	681	28.4
X.....	26, p.m.	53	105	29, a.m.	48	89	1,250	2.5	500	20.8
X.....	27, a.m.	38	114	30, a.m.	46	78	2,475	8.0	825	34.4
Sums.....							26,375	39.5	7,353	306.0
Mean of 11 paths.....							2,398		668	27.8
Mean of 39.5 days.....									668	27.8

\*March.

For graphic presentation of the movements of these highs and lows see Charts I and II.—*Geo. E. Hunt, Chief Clerk, Forecast Division.*

#### RIVERS AND FLOODS.

In the Mississippi River, above the mouth of the Ohio, the average stages were somewhat lower than during the preceding month, while in the lower river, at least below Memphis, Tenn., they were 2 to 10 feet higher, the comparatively high stages of the preceding month having been prolonged by the moderate tides in the Ohio River that passed Cairo, Ill., on the 8th, and again on the 21st. The crest of this latter rise passed down the upper Ohio from the 10th to the 15th, reaching Cincinnati on the latter date. It afforded an opportunity for the issue of a few local flood warnings, and passed off without doing any damage.

Excellent navigable stages were the rule over nearly all the rivers, and the season on the upper Mississippi was opened throughout by the arrival on the 7th, at St. Paul, Minn., of the steamer *Cyclone*, the first boat through Lake Pepin from the south.

Nothing further of particular interest occurred except the flood of March 28–April 10 in the lower Tennessee River and its tributaries. The following report on this flood was made by Mr. P. H. Smyth, Official in charge of the United States Weather Bureau office at Cairo, Ill.:

The flood in the Duck and lower Tennessee rivers, although not extensive nor of long duration, was very destructive in its effects on account of its suddenness.

The rise was almost simultaneous with the falling of phenomenally heavy rains over southwestern Tennessee and northern Alabama. The heavy rainfalls over those sections for the twenty-four hours ending at 7 a. m., March 29, 1902, were as follows: Riverton, Ala., 7.15 inches; Columbia, Tenn., 4.40; Florence, Ala., 2.07; Johnsonville, Tenn., 1.59.